

may be difficult because systems that could share would likely come on line at different times.

As with the flexible band arrangement, there would also be a very real and debilitating uncertainty factor for all systems except the first few. The first few might be able to pick their own frequencies. But, otherwise, until a system is qualified to start the coordination process, it would have no certainty with respect to which or how much spectrum it would obtain in the intersystem coordination process. It could not even identify the criteria which would determine its frequency plan. Such uncertainty would make it difficult to obtain financing for the system and to initiate international coordination.²⁰

Conducting the negotiations prior to any system becoming operational fares no better. Pre-operational negotiations would certainly provide an incentive for all systems to work in good faith toward an acceptable agreement. However, because each system has a different timetable for development and launch, incentives to delay achieving agreement would still exist. Also, the Commission should take into account that three of the nine applicants are licensed or seeking licenses from other administrations. Although the Commission can adopt rules for authorizing service in the United States by non-U.S. satellite systems, it is not clear that these

²⁰ System operators would also likely have difficulty attracting service providers for operation in non-U.S. territories. Unless a system is willing to accept operational authority in inconsistent bands globally, this proposal may make it difficult to pursue authorizations for the international service.

applicants would feel bound to participate in a spectrum-assignment process involving only private parties.²¹

The Commission's proposal to award each system priority rights to 2.5 MHz of spectrum in each direction does not alleviate these concerns. That amount of spectrum is insufficient to sustain a business plan, and so, the uncertainty factors are not eliminated. Also, for those systems that can share spectrum and aggregate, the critical piece of information is how much shared spectrum would be available, not how much an individual system would be assigned by right. The Commission also proposes dividing the spectrum on GSO/NGSO or shared/unshared criteria. While this would reduce the number of potential parties in the negotiation process, it would not reduce the uncertainty factors, nor would it necessarily result in an optimal use of the spectrum, depending upon the timing of implementation of various systems and their system architecture.

E. If the Commission Does Not Adopt the "All Shared Band" Plan, Then a Traditional Band Plan Best Serves the Public Interest.

Innovative spectrum assignment processes should always be considered and debated. Globalstar has proposed an innovative "all shared band" plan which it supports for 2 GHz MSS. If, however, the Commission is unwilling to impose design requirements on 2 GHz MSS applicants, as required by that plan, then it should

²¹ The "all shared band" plan described above is premised on each system being assigned to use the entire 2 GHz MSS band, and then coordinating the system design and parameters to operate co-frequency.

provide a small carve-out of spectrum for system designs that cannot, or will not, share. This is the essence of a so-called “traditional band plan.”²²

Using the Commission’s guidelines to place GSO systems in regional spectrum and to provide channel bandwidths of 1.25 MHz, Globalstar proposes the following version of a “traditional band plan” for the spectrum:²³

System Architecture	Uplink	Downlink
NGSO sharing	1990-2002.50 MHz	2180-2192.50 MHz
NGSO exclusive ²⁴	2002.50-2010 MHz	2192.50-2200 MHz
GSO sharing	2017.50-2025 MHz	2172.50-2180 MHz
GSO exclusive	2010-2017.50 MHz	2165-2072.50 MHz

This proposal provides 12.50 MHz of global MSS spectrum in each direction for up to four NGSO systems proposing to share spectrum (e.g., Globalstar, Boeing, Constellation and MCHI). It provides 7.50 MHz of global spectrum in each direction for up to two primarily TDMA systems (e.g., ICO and Iridium). The proposal is designed to maximize shared spectrum because it increases the

²² The Commission’s traditional band plan (NPRM, ¶ 44) assigns specific band segments to individual systems. Globalstar’s version assigns systems to larger band segments.

²³ The proposed band segments constitute a proposal based on current information. There may be factors that warrant shifting the boundaries, including information in system amendments.

²⁴ The exclusive NGSO segments have been placed at the top of the band assignment for TDMA NGSO systems in Europe. See ERC Decision 97(03), “On the Harmonised Use of Spectrum for Satellite Personal Communications Services (S-PCS) Operating within the Bands 1616-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz.”

bandwidth available to sharing systems and limits the potential for discrete segments to lie fallow. If more systems propose to share, then the sharing/exclusive boundary should be expanded accordingly.²⁵

The plan provides an additional 7.50 MHz of spectrum in each direction for sharing in the regional spectrum, and 2 x 7.50 MHz of spectrum for exclusive assignments in the regional allocations. In practice, the segments assigned for "sharing" or "exclusive" could be used by both GSO and NGSO systems if the affected systems can achieve a coordination agreement within those segments.

Globalstar's version of the traditional band plan can accommodate certain contingencies which are factored into the other proposals. For example, Globalstar's band plan does not specifically allow the first few operational systems to use the most accessible spectrum from the point of view of sharing with terrestrial incumbents, as does the negotiated entry approach. However, the Commission can address this issue by having the fixed band plan outlined above take effect at some date in the future (e.g., January 1, 2005) and by allowing any system to operate anywhere within the 2 GHz MSS spectrum prior to that date. Operational systems would be required to conform to the band plan after the implementation date.

To account for the contingency that several licensees do not meet their implementation milestones, the Commission may want to provide for a negotiation

²⁵ This does not preclude the possibility of sharing by TDMA systems or between TDMA and CDMA systems.

among the remaining licensees if a certain number of licensees fail to meet their milestones. Globalstar's proposed band plan should be used as the default plan if no agreement is reached, so that the incentives to delay agreement are minimized.

Globalstar's proposal does not provide for expansion spectrum for systems that perform well in the marketplace. If this is a desirable feature, the Commission should implement a regularly scheduled dynamic coordination process after the date of the in-service milestone for all licensed systems has passed. From a business perspective, the value of having access to specific spectrum from the date of initial licensing outweighs the value of starting with limited spectrum with the potential for an increase.

F. The Commission Should Adopt Its Proposed Policies on Channelization and Use of Regional Spectrum and Not Plan for Additional Processing Rounds at This Time.

With respect to several matters relevant to any spectrum plan, Globalstar provides the following comments:

Channelization. Globalstar supports the view that 1.25 MHz is the ideal segment size on which to base band planning. (NPRM, ¶ 27.) This channel bandwidth accommodates CDMA and TDMA architectures. The other logical choice would be increments of 1 MHz, but 1.25 MHz makes more sense where, as here, CDMA systems are proposed.

Regional spectrum. The Commission's suggestion that regional GSO systems should be assigned spectrum in frequencies allocated only for Region 2, and spectrum available globally should be reserved for global systems should be viewed

as one mechanism to promote sharing. (NPRM, ¶ 28.) That being said, however, global systems need not be precluded from operation in regional spectrum.

Although global spectrum is preferred for NGSO systems, regional spectrum can still be used by global systems and NGSO and GSO systems can potentially operate co-frequency. Therefore, this suggestion should be a guideline, not a firm rule.

Additional processing rounds. Even if some of the current nine applicants abandon their proposed MSS systems, Globalstar doubts that there will be any “unused” spectrum in the 2 GHz MSS range. Therefore, the Commission should not decide now how to assign “unused” 2 GHz spectrum. (NPRM, ¶ 29.) Rather, the Commission should review the use of the spectrum and the progress of systems at some future date before initiating any proceeding to accept a second round of 2 GHz MSS applications. In this regard, the Commission must not lose sight of the overriding policy goal or allow “the best” to become the enemy of “the good.” The objective is to facilitate at least a minimal level of competitive entry to provide consumer choice and an array of services. The Commission does not have to try to shape or mold competition into an ideal but ultimately unachievable form. The Commission will have met its goal if two or three 2 GHz systems attain viability.

III. THE COMMISSION SHOULD ALLOW APPLICANTS TO AMEND THEIR FEEDERLINK REQUESTS AFTER THE SERVICE LINK BAND PLAN HAS BEEN DETERMINED.

The Commission has asked a number of questions regarding assignment of feeder links to the proposed 2 GHz MSS systems. (NPRM, ¶¶ 49-66.) Although there appears to be sufficient feeder link spectrum to accommodate all pending

applicants, specific assignments are uncertain. Feeder link requirements are, in part, dependent upon service link assignments, and the service link band plan has not yet been established. A number of the available feeder link bands are involved in separate processing rounds for Fixed-Satellite Service (“FSS”) systems. Furthermore, each system proposes a different set of feeder links, some of which may not be available. Ultimately, the system requirements and spectrum availability must be accommodated in a unified plan, and that appears feasible.

The Commission seeks proposals regarding the procedures for assigning feeder links. As long as there is sufficient feeder link spectrum available for all nine proposed MSS systems, the most efficient procedure for resolving feeder link issues is to allow applicants to amend their feeder link requests once the band plan for the service link frequencies is known.²⁶ (See NPRM, ¶ 56.) At that time, applicants can take into account the amount of user bandwidth available, number and location of earth stations for each system, and the availability of their desired feeder link spectrum, and specify their preferred frequencies. It should be possible to resolve conflicts quickly, so that the process of assigning feeder links would not significantly delay a system in meeting its implementation milestones.²⁷

²⁶ The Commission’s request for an algorithm to scale back feeder link requests consistent with user link assignments is impractical. (NPRM, ¶ 55.) Applicants should be given opportunity to assess the service link plan, and review its impact on system design, before amending to request feeder links. If the amended feeder link requests appear excessive, the Commission can always request justification.

²⁷ Section 25.203(k) provides sufficient guidance for coordination of feeder link conflicts. (See NPRM, ¶ 55.)

Where an applicant's preferred feeder link frequencies are at issue in a parallel processing round, which is not complete, the applicant should have the choice of amending to specify those frequencies for construction at its own risk pending completion of the other proceeding, or to request alternate frequencies.²⁸ Neither of these options should automatically stay the effect of implementation milestones. An applicant may always seek a waiver of any applicable milestones based on specific factual circumstances justifying delay. In any event, no applicant is likely to seek out a significant delay in construction because of the scarcity of service link spectrum and the strong likelihood that at least some 2 GHz applicants will implement service in the near term.

Nevertheless, to avoid harm to other licensees, the Commission should not allow delay in assignment of feeder link frequencies to result in spectrum lying fallow. All systems should be assigned feeder links that permit construction to commence, and any waiver of the milestones must be limited to a reasonable period of time, beyond which the licensee must move forward with alternative frequencies or lose any priority it may have in service link assignments.

As to specific feeder link bands, Globalstar requested that the Commission assign feeder links for its NGSO constellation in the 15.43-15.63 GHz (earth-to-

²⁸ The Commission should also consider whether it is necessary to avoid prejudice to other applicants in a separate processing round to consider requests for feeder links in certain bands, e.g., for Ka-band (NPRM, ¶ 63), with service link requests in such separate processing round. If it is possible to sever the feeder link requests, then the Commission may be able to expedite licensing of the 2 GHz applicants.

space)²⁹ (200 MHz requested) and 6700-6875 MHz (space-to-earth) bands (100 MHz requested). As the Commission notes, the bands 15.4-15.7 GHz and 6700-7075 MHz were allocated to MSS feeder links at the 1995 World Radiocommunication Conference (“WRC”), and the Commission has proposed that these allocations be adopted in the U.S. Table of Frequency Allocations.³⁰ Constellation and MCHI have requested feeder link assignments in the same bands for their NGSO systems. Based on these requests, the Commission’s assessment that there is sufficient feeder link spectrum in these bands to accommodate those applicants that desire assignment in these frequency ranges appears to be correct.

With respect to sharing, the Commission is correct in assuming that two systems can feasibly share spectrum for co-directional feeder link transmissions. (NPRM, ¶ 59.) Rather than suggesting a specific configuration to coordinate the operation of these systems, the Commission should allow the licensed systems to coordinate with each other.³¹ This approach is consistent with the Commission’s

²⁹ As an alternative feeder uplink, Globalstar requested 200 MHz in the 19.3-19.7 GHz band.

³⁰ See Amendment of Parts 2, 25 and 97 of the Commission’s Rules with Regard to the Mobile-Satellite Service Above 1 GHz, 13 FCC Rcd 17107 (1998). The allocation at 15.4-15.7 GHz was modified to 15.43-15.63 GHz at the 1997 WRC.

³¹ The amount of feederlink spectrum required and the ability to share with other systems, or within one licensee’s system, should be evaluated after amendments are filed. (See NPRM, ¶ 60.)

approach to coordination generally,³² and will provide the parties with the greatest flexibility in coordination.

For its proposed GSO satellites, Globalstar requested feeder link assignments in the FSS allocation at Ku-band. The Commission notes that its existing policy is to reserve the FSS allocations in Ku-band for service links. (NPRM, ¶ 52.) It identifies the bands 5850-5925 MHz, 6425-6725 MHz, 12.75-13.25 GHz, and 13.75-14.0 GHz for GSO MSS feeder uplinks and 3600-3650 MHz and 10.7-11.7 GHz for GSO MSS feeder downlinks. (NPRM, ¶ 53.)

Although the Commission proposes to preclude GSO MSS feeder link assignments in the FSS Ku-band allocation, it asks whether it should make an exception for its existing policy “if a 2 GHz MSS applicant reaches an agreement with an existing FSS licensee to use its licensed spectrum, or if the requested location is in an uncongested portion of the arc.” (NPRM, ¶ 52.) These exceptions should be implemented. The Commission has traditionally relied upon licensees to reach agreements on spectrum usage where the Commission’s policies provide a level of protection from interference that may be more stringent than necessary given the facts of a specific situation. On the other hand, the bands identified by the Commission for GSO MSS feeder links would be sufficient were Globalstar required to amend its GSO satellite feeder link request.

³² See Big LEO Rules Order, 9 FCC Rcd at 5962-63.

However, pursuing Ku-band feeder links under these scenarios would require some period of time if an agreement must be reached with another satellite operator. Therefore, any GSO MSS system proposing to use Ku-band feeder links should be assigned feeder links in the bands noted by the Commission which it could modify if the Ku-band feeder links are available.

With respect to the bands identified by the Commission for GSO MSS feeder links, there is little concern that assignment of these frequencies to applicants in the current processing round would result in “ubiquitous deployment of FSS earth stations,” a result which the Commission has attempted to avoid. (NPRM, ¶ 53.) At most, Globalstar would expect to deploy only one or two earth stations in United States for use with its proposed GSO satellite in the domestic arc, and it may use existing Globalstar gateway sites for this purpose. But, in any event, since there are only four GSO MSS proposals among the 2 GHz applications that could deploy earth stations in these bands, the Commission’s case-by-case approach to assigning feeder link frequencies need not be expanded.³³

³³ The Commission notes that NG104, applicable to the 10.7-11.7 GHz and 12.75-13.25 GHz bands restricts the use of these frequencies for feeder links assigned to international, non-domestic systems. 47 U.S.C. § 2.106 NG104. However, the Commission has eliminated its distinction between international and domestic Fixed-Satellite Service systems. See Amendment of the Commission’s Regulatory Policies Regarding Domestic Fixed Satellite Systems and Separate International Satellite Systems, 11 FCC Rcd 2429 (1996). The Commission should take this opportunity to eliminate or clarify the footnote.

Telemetry, Tracking & Command. The Commission's conclusion that TT&C operations should be performed within assigned feeder link bands is both sensible and technically feasible. It should be adopted. (NPRM, ¶ 67.)

Intersatellite Links. As the Commission notes, Globalstar applied to use 100 MHz of spectrum in the 59-64 GHz band for intersatellite links among the GSO satellites and NGSO constellation in its system proposal. At the 1997 WRC, the ITU modified the band 64-71 GHz to permit assignment of intersatellite links, and the Commission plans to allocate the band 65-71 GHz for this purpose within the United States. (NPRM, ¶ 69.) Globalstar does not object to the Commission's proposal as long as it is allowed to amend its proposed intersatellite links if necessary to operate consistent with the U.S. allocation. Globalstar also supports the Commission's proposed application of Section 25.279 to intersatellite links. (NPRM, ¶ 70.) It is willing to coordinate the use of bands assigned for intersatellite links with both government and non-government users. However, currently, Section 25.279 only refers to intersatellite links between NGSO satellites and other space stations. It should be amended to apply to communications between any space stations.

IV. THE COMMISSION SHOULD ADOPT ITS PROPOSED REGULATORY CLASSIFICATIONS FOR 2 GHZ MSS.

The Commission seeks comment on its proposed regulatory classifications for satellite system licensees and licensees of blanket Mobile-Earth Terminal ("MET") authorizations in the 2 GHz MSS service. (NPRM, ¶¶ 73-78.) At issue is whether provision of MSS over either spacecraft or METs should be classified as common

carriage pursuant to Section 332 of the Communications Act of 1934, as amended. Section 332(c) requires that providers of Commercial Mobile Radio Services (“CMRS”) be treated as common carriers.³⁴

Globalstar supports the Commission’s proposed regulatory approach classifying MSS satellite services as private carriage and evaluating on a case-by-case basis whether MSS service to end users should be treated as CMRS. This is the same approach that the Commission adopted for MSS Above 1 GHz, and there is no reason for the Commission to deviate from this functional approach for 2 GHz MSS.³⁵

The Commission’s regulatory approach is based on the two-part test for common carriage enunciated in National Ass’n of Regulatory Utils. Comm’rs v. FCC.³⁶ The Commission is correct that MSS is now or will be in the near future a competitive service, and, therefore, there is no legal compulsion for 2 GHz MSS spacecraft licensees to serve the public indifferently and to be subject to common carrier regulation. (NPRM, ¶ 75.) Also, most MSS licensees, like Globalstar, will not attempt to serve end users directly, but rather will provide bulk capacity to

³⁴ 47 U.S.C. § 332(c)(5) (Commission may determine whether “the provision of space segment capacity to providers of commercial mobile services shall be treated as common carriage”).

³⁵ See Big LEO Rules Order, 9 FCC Rcd 6002-04.

³⁶ 525 F.2d 630, 642 (D.C. Cir.), cert. denied, 425 U.S. 999 (1976). The D.C. Circuit enunciated a two-part test for common carriage: (1) whether there is or should be a legal compulsion for the provider to serve the public indifferently; and (2) whether the service is such that the provider is likely to hold itself out to serve indifferently all eligible users.

service providers, who, in turn, will serve end users. (NPRM, ¶ 76.) Satellite systems that merely offer space segment capacity to other carriers in a competitive environment have for many years qualified as private carriers.³⁷ Similarly, licensees of gateway earth stations do not serve end users directly, and, therefore, should not be regulated as common carriers. (NPRM, ¶ 78.)

V. THE COMPETITIVE NATURE OF 2 GHz MSS DEMANDS A FLEXIBLE LICENSING SCHEME.

Globalstar generally supports the Commission's policy of issuing to each 2 GHz NGSO system a "blanket" authorization to construct, launch and operate its proposed constellation of satellites and licensing each GSO satellite separately. (NPRM, ¶ 79.) The differences in satellite design and coordination parameters between NGSO and GSO satellites warrant this distinction. Globalstar also supports the Commission's proposal to include within the blanket license replacement satellites for those lost during launch or retired before the end of the license term. (NPRM, ¶ 80.)

The Commission has proposed a 10-year license term for NGSO and GSO licenses, commencing with satellite operations.³⁸ (NPRM, ¶ 80.) This approach is

³⁷ See Domestic Fixed-Satellite Transponder Sales, 90 FCC 2d 1238 (1982), aff'd sub nom. Wold Communications, Inc. v. FCC, 735 F.2d 1465 (D.C. Cir. 1984).

³⁸ Globalstar does not object to the proposal to require applications for renewal to be filed "no earlier than three months before and no later than one month after end of the seventh year of the existing license." (NPRM, ¶ 82.) Of course, if the Commission expands the license term, then it should modify this proposal accordingly.

consistent with decisions in prior satellite proceedings. However, as a result of the Telecommunications Act of 1996, the Commission has the authority to grant longer license terms for non-broadcast radio services. See 47 U.S.C. § 307(c)(1). MSS could support a longer license term based on the multi-billion dollar investment required for MSS systems and the substantial investment in time and labor required to build the satellites, establish relationships with service providers, and market the service globally. Moreover, a longer license term may encourage technical innovation as a system operator may seek increasingly efficient ways of using spectrum for replacement satellites. A longer license term could, therefore, benefit users through enhanced service offerings over the lifetime of the system.³⁹

Two additional modifications to the Commission's proposals would improve the licensing process for 2 GHz MSS. First, the Commission should make clear that 2 GHz spacecraft licenses include the right to communicate with satellites after launch for orbit-raising and system testing purposes. As the Commission is aware, an NGSO constellation is launched over a period of 12-18 months. During that time frame, the communications operations of the satellites in-orbit must be tested prior to commencement of commercial service.

Furthermore, the capabilities of launch vehicles vary; it may take anywhere from a week to two months after launch for satellites to arrive in their final orbits.

³⁹ Although GSO satellites generally have a longer lifespan than NGSO satellites, and, therefore, may not be subject to the same market forces, Globalstar supports adopting a longer license term for GSO satellites in the 2 GHz MSS spectrum if a longer license term is adopted for NGSO systems.

The operator should have the authority to communicate with the satellites at lower than authorized orbit during any orbit-raising sequence without having the burden of seeking additional authority from the Commission.

The NPRM proposes to include in the 2 GHz MSS license authority for pre-operational testing transmissions “to the extent applicants include information in their applications” concerning such transmissions. (NPRM, ¶ 80.) Globalstar supports this proposal to account for the pre-operational tests described above. But, the restriction on information provided in the application is unnecessary.

In this regard, the Commission should note that two years have already passed since the 2 GHz MSS applicants were required to file their initial applications. Launch agreements have not been negotiated, and launch of the proposed systems may not occur for another five years. There is no reason for the Commission to limit pre-operational testing to the information provided in an initial application. The Commission should assume that satellite systems require communications during orbit-raising sequences and in pre-operational periods, and grant such authority under the constellation license. Otherwise, the licensee and the Commission must expend resources on obtaining special temporary authority for any pre-operational testing for no apparent public interest purpose. Rather, as long as such communications occur on assigned frequencies, and do not increase the level of expected interference into other systems, there is no reason to limit pre-operational testing. Such authority should be encompassed within the 2 GHz MSS license.

Second, the Commission should modify its proposals regarding replacement and in-orbit-spare satellites. The Commission proposes to require that replacement and spare satellites be “technically identical” to prior satellites. The goal of this requirement is “to assure continued compatibility of the systems with other uses of the spectrum.” (NPRM, ¶ 81.) But requiring replacements and spares to be technically identical is a far more restrictive standard than is necessary to satisfy the Commission’s stated concern. Satellite designers and manufacturers constantly incorporate minor technological advances and improvements during the long manufacturing process. As long as replacement or spare satellites placed into use conform to the PFD and EIRP limits established for 2 GHz MSS and other sharing criteria, non-technically identical satellites could be operated without affecting other MSS systems and/or other services operating in the same or adjacent bands. The only legitimate concern with respect to replacement and spare satellites is the protection of the existing interference rights of other licensees. Accordingly, the Commission should deem replacement and spare satellites “technically identical” where their operation will not change the interference environment of the original system.

VI. THE COMMISSION SHOULD ADOPT AND STRICTLY ENFORCE DETAILED MILESTONE REQUIREMENTS.

The Commission proposes to adopt implementation milestones for 2 GHz MSS licensees “to ensure that systems are constructed within a reasonable time and thus, ensure delivery of service to the public, and to prevent warehousing of valuable and limited resources of orbital locations and spectrum.” (NPRM, ¶ 83.)

Milestones are critical to the success and stability of 2 GHz MSS. However, the Commission must adopt more detailed and stringent milestones than those established for Big LEO systems. (NPRM, ¶ 85.)

The Commission proposes that NGSO systems must commence construction of the first two satellites in the constellation within two years of grant, and begin constructing all remaining satellites within three years of authorization.

Construction on the first two NGSO satellites would have to be completed within four years. The entire system would have to be launched and operational within six years. GSO satellite licensees would have to commence construction of the first satellite in a system within one year, and of all satellites within three years, and would be required to launch the first satellite in a system within five years, and the entire system within six years of authorization. (NPRM, ¶¶ 85-86.)

Although well intended, these milestones do not sufficiently track the progress of a satellite system and cannot readily identify systems that are unlikely to become operational. For example, “construction” can commence by signing a non-binding contract for construction. Therefore, under the Commission’s proposal, a system would not have to demonstrate any substantive progress until four years after authorization. This long period is unacceptable given that failure to construct can result in tying up scarce spectrum resources for years.⁴⁰ It should be obvious within two years of authorization whether an operator has a realistic chance of

⁴⁰ See Geostar Positioning Corp., 6 FCC Rcd 2276 (1991).

putting up an operational constellation, and the Commission should be ready to revoke licenses of systems that are not making progress within that time period.

To improve on the monitoring of systems, the Commission should incorporate into its proposal the reporting milestones established for 1.6/2.4 GHz and 2 GHz MSS systems adopted by the European Union.⁴¹ Specifically, in addition to its construction, launch and operation milestones, the Commission should require reports on the following:

- Satellite Manufacturing. The satellite network operator should be required to provide clear evidence of a binding agreement for the manufacture of all satellites in an NGSO constellation. The document should identify the construction milestones leading to the completion of manufacture of satellites required for the commercial service provision. The document should be signed by the satellite network operator and the satellite manufacturing company and should be available for inspection by the Commission. If they are the same, a commitment should also be provided by the satellite network operator.
- Completion of Critical Design Review. The satellite network operators should provide clear evidence of the completion of Critical Design Review in accordance with the construction milestones indicated in the satellite manufacturing contract. The declaration, signed by the satellite manufacturing company and indicating the date of the completion of the Critical Design Review, should be available for inspection by the Commission.
- Satellite Launch Agreement. The satellite network operator should provide clear evidence of a binding agreement to launch the minimum number of satellites required to provide a continuous service within the United States. The document should identify the launch dates and the launch services and indemnity contract. The document should be

⁴¹ CEPT/ECTRA, "On Harmonisation of Authorisation Conditions and Co-ordination of Procedures in the Field of Satellite Personal Communications Services (S-PCS) in Europe, Operating Within the Bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz" (July 3, 1997) (ECTRA/DEC(97)02).

signed by the satellite launching company and should be available for inspection by the Commission.

- **Gateway Earth Station Agreement.** The satellite network operator should provide clear evidence of a binding agreement for the construction and installation of gateway Earth stations that will be used to provide the MSS within the United States. This document should be available for inspection by the Commission.

As a more detailed system of milestones, the Commission could adopt the following schedule for NGSO systems:⁴²

Milestone	Months After Authorization
Satellite Manufacturing	12 months
Critical Design Review	24 months
First Two Satellites Constructed	36 months
Gateway Earth Station Agreement	36 months
Launch Agreement	36 months
First Two Satellites Launched	42 months
All Satellites Constructed	48 months
Entire System Launched	58 months
In-Service Date	60 months

For GSO systems, the Commission should simply modify this schedule to account for the longer period of construction for the larger satellites.

⁴² The requirements for Satellite Manufacturing, Critical Design Review, Gateway Earth Station Agreement, and Launch Agreement are described above.

If the Commission is serious about compelling satellite licensees to move forward with construction and launch, then it must establish milestones that will force operators to demonstrate real progress. Otherwise, the Commission does not have the means to identify failing systems until their lack of progress threatens to disrupt the licensing scheme and coordination requirements for the service.

For global systems, the proposed milestones should not be overly burdensome. If these systems plan to serve the European Union, they will be required to report the milestones set forth above to the Milestone Review Committee established by the European Radiocommunications Committee. There is simply no reason for the Commission not to demand the same information.

Milestones serve the public interest by helping to conserve spectrum resources and to promote the rapid deployment of licensed 2 GHz MSS systems. However, these milestones will achieve none of their purposes unless they are strictly enforced. There are many reasons why an operator cannot meet milestones, and the Commission should certainly consider those reasons in deciding whether a requested extension is warranted. But, the Commission must balance the justification with the harm to the public in spectrum lying fallow and the harm to other licensees in having to coordinate with “paper” systems. The Commission may even consider penalizing a licensee for failing to meet milestones with loss of priority in coordinating its proposed system with other 2 GHz MSS licensees. That would alleviate some of the burden and encourage progress without revocation of

license. Significant delay should still result in loss of license so that the spectrum can be fully utilized for the benefit of the public by other systems.

With respect to the application of milestones to filers of “Letters of Intent” for whom spectrum would be reserved, Globalstar supports the Commission’s proposal to have the milestones run concurrently for all systems authorized to use the 2 GHz spectrum in the United States. Therefore, adopting a “rule” for 2 GHz MSS setting forth the milestone schedule for all authorized systems would be appropriate.

(NPRM, ¶ 88.) However, there should be no doubt that each authorization – whether it is a U.S. license or an FCC order reserving spectrum for a non-U.S. system – incorporates the milestone schedule and the penalties for failure to meet the schedule.

VII. REGULATORY REQUIREMENTS FOR 2 GHZ MSS SHOULD BE SIMILAR TO THOSE GOVERNING MSS ABOVE 1 GHZ.

The Commission proposes to adopt a number of rules based on the rules adopted for MSS Above 1 GHz service.

Reporting Requirements. Globalstar does not object to the proposed annual reporting requirements, and milestone reports, which are the same as those currently in place for MSS Above 1 GHz except for the date of filing.⁴³ (NPRM, ¶¶ 91-92.)

⁴³ Paragraph 91 of the NPRM refers to an October 10 deadline, and Appendix D proposes to modify Section 25.143(e) of the Commission’s Rules to require reporting by October 15 of each year. The Commission should resolve this discrepancy, and should certainly allow at least 15 days for the information to be collected.

Distress and Safety Communications. Globalstar supports the Commission's proposal to apply the requirements of Section 25.143(f) to 2 GHz MSS licensees. (NPRM, ¶ 93.)

Exclusionary Arrangements. The pro-competitive concerns on which this proposal is premised are well-founded. Prohibiting exclusionary arrangements will ensure that worldwide markets are accessible to all systems. This rule should be extended to all 2 GHz MSS systems authorized to operate in the United States. (NPRM, ¶ 103.)

Mobile Earth Station Licensing. The Commission should adopt rules for 2 GHz METs that are comparable to those in place for MSS Above 1 GHz METs, as modified by any applicable rules adopted in the Commission's proceeding concerning deployment and circulation of GMPCS terminals.⁴⁴ (NPRM, ¶¶ 104-107.)

VIII. THE COMMISSION SHOULD NOT IMPOSE ENHANCED 9-1-1 REQUIREMENTS ON 2 GHZ LICENSEES.

In the NPRM (¶ 94), the Commission seeks comment on whether enhanced 9-1-1 (E911) requirements should be imposed on 2 GHz MSS licensees. For the following reasons, the Commission should not impose E911 requirements at this

⁴⁴ Amendment of Parts 2 and 25 to Implement Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements, FCC 99-37 (released Mar. 5, 1999) ("GMPCS NPRM"). In conjunction with L/Q Licensee, Inc., and AirTouch Communications, Inc., Globalstar submitted comments in this proceeding on June 21, 1999, and hereby incorporates those comments by reference.

time on MSS providers. The Commission's findings concerning MSS systems have simply not changed since it previously determined that such requirements are unwarranted.⁴⁵

First, the model of the terrestrial wireline or wireless emergency call service is inconsistent with the operation of MSS systems. Emergency 911 calls require rapid identification of the public safety answering point ("PSAP") nearest to the caller and a local response. However, NGSO MSS systems are inherently global in service area; Globalstar plans to have only about three or four gateway earth stations serving the United States to which incoming calls would be routed. While a PSAP may be designated for each area served by a gateway, it would be difficult in true emergencies to route the call to the PSAP closest to the caller. (There are currently over 6,000 PSAPs.) Given the most efficient deployment of MSS technology, it makes little sense for callers to use MSS systems for localized emergencies. Therefore, MSS systems should not be burdened with the E911 requirements adopted for terrestrial services.⁴⁶

Second, MSS systems like Globalstar provide international service, and serve subscribers originating calls not only within but also outside the United States.

⁴⁵ See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, 11 FCC Rcd 18676, 18718 (1996).

⁴⁶ Globalstar terminals will include a dual mode option which would give the user access to both cellular and MSS capabilities. By selecting this option, a Globalstar subscriber would have access to E911 capabilities applied to cellular systems whenever he or she was in range of a cellular system.

Currently, there is no international "911" call designation. If any emergency service requirements are to be imposed upon global MSS systems, then they should be developed in an international forum which would allow the United States to take into account compatibility and consistency with international standards.

Coordinating emergency requirements with other countries would ensure that U.S. MSS licensees are not unduly burdened by a variety of requirements imposed by many different countries as well as the United States.

Third, MSS systems remain in a relatively early stage of development, compared with terrestrial wireless systems, and it is therefore premature to mandate compliance with rules proposed primarily for terrestrial wireless technology. Compliance with the E911 services would be burdensome not only for system development but also for cost and performance of subscriber equipment.

The first generation of Globalstar uses a position location system for terminal registration and subscriber billing purposes, but its accuracy at this time is no more than about 10 kilometers. Improvement in location capability is expected over time, but to meet the 125 meter accuracy standard of Phase II E911 requirements for CMRS carriers⁴⁷ would be a significant economic burden now, even for the second generation. And this burden would be passed on to consumers, making MSS less accessible and less likely to achieve the benefits of MSS which the Commission

⁴⁷ 47 C.F.R. § 20.18(e) (by October 1, 2001, CMRS carriers must provide to the PSAP "the location of all 911 calls by longitude and latitude such that the accuracy for all calls is 125 meters or less using a Root Mean Square (RMS) methodology").

anticipates for consumers. E911 requirements are impractical for MSS and expensive, and should be avoided at this time.⁴⁸

IX. THE COMMISSION SHOULD NOT MANDATE POLICIES FOR SERVICE TO RURAL AND UNSERVED COMMUNITIES IN THIS PROCEEDING.

In the NPRM (§ 95), the Commission seeks “guidance as to any policies or rules we could implement (or forebear from) to encourage 2 GHz MSS service to” unserved, rural, insular or economically isolated areas.

The Commission has not specified the nature of its concern regarding service to unserved communities. However, the Commission does not need to encourage 2 GHz MSS satellite systems to develop the capability to serve rural and underserved areas. The proposed geographic coverage requirements ensure that all licensed systems will have that capability, and service providers are likely to focus on areas unserved by wireline or terrestrial wireless services as primary sources for MSS subscribers.

If the economics of serving rural areas is at issue, then the Commission must consider whether cost support mechanisms are available for MSS systems that would allow rural and unserved communities to subscribe to a service that will generally be more expensive than wireline or cellular service. If there are rules and policies preventing MSS systems from obtaining cost support for service to rural

⁴⁸ An Automatic Number Identification ("ANI") capability is being developed for use with the 1.6/2.4 GHz MSS Globalstar system.

and unserved communities, then the Commission should forbear from those rules and policies.

However, given the relatively limited capacity available to MSS systems in comparison to terrestrial systems, the Commission should not require service to any particular group or area or attempt to skew the market with artificial incentives that may not be effective. Such measures could have the negative consequence of making satellite voice services more expensive.

Specifically, in serving high cost areas, terrestrial service providers must consider whether the service area will produce revenues sufficient to cover the cost of installation and maintenance. For MSS systems, there is no additional fixed cost in providing coverage to high cost areas beyond the cost of the telephone; but, because capacity is limited, a requirement to provide service at a mandated level to a certain market segment would skew systemwide circuit distribution and interfere with business plans in other market segments. Similarly, offering spectrum incentives to serve rural communities could generate unrealistic proposals from satellite proponents without sound business plans to cover the multi-billion cost of construction and launch. Such systems are not likely to materialize as operational systems, yet they could still tie up spectrum.

In any event, most of the systems under consideration in the current processing round for 2 GHz will not be operational for four or five years. In that time period, the Commission may adopt specific rules and policies for service to rural and unserved areas. There is no reason to rush to adopt those rules for MSS

systems now. It is better to ensure that systems that can serve rural areas become operational than to create a system for service to rural areas that may never obtain financing for construction and launch.

X. THE COMMISSION SHOULD CONSIDER THE ISSUE OF ORBITAL DEBRIS IN A PROCEEDING OF GENERAL APPLICABILITY.

The Commission has raised the question of whether 2 GHz MSS systems, and commercial satellite systems generally, should be required to implement measures for orbital debris mitigation. As the Commission notes, NASA and DOD have developed a set of draft debris mitigation practices, which are under consideration for application to government satellites. (NPRM, ¶¶ 97-102.)

Globalstar would certainly support a Commission proceeding devoted to the issue of orbital debris mitigation. Input from the entire industry would probably produce guidelines acceptable for all systems. However, it is unfair for the Commission to attempt to impose such requirements in this proceeding without having imposed these requirements on the licensee's competitors.

At most, the Commission should ask system operators licensed in this proceeding to be mindful of the issue and design their systems in consideration of the need to mitigate orbital debris. However, rules and policies for orbital debris mitigation should be considered in a proceeding applicable to all satellite systems on a prospective basis.

XI. THE COMMISSION SHOULD ATTEMPT TO COORDINATE ITS BAND PLAN FOR 2 GHZ MSS GLOBALLY.

The Commission has sought comment on the approach it should undertake in attempting regional and global international coordination. (NPRM, ¶ 108.) The Commission should encourage other administrations to follow the band plan adopted for 2 GHz systems in this proceeding. Although the Commission cannot dictate what authorizations are issued to each licensee by foreign administrations, it can use the coordination process to encourage adoption of similar band plans.

Based on Globalstar's experience with Big LEO systems, this approach best serves the interest of regulators, licensees, and the public. In obtaining authorizations to provide MSS Above 1 GHz service, Globalstar's service providers have attempted to follow the United States' band plan. As Globalstar discovered, following the same band plan globally simplifies the international coordination process.

The Commission should have some success with this approach for 2 GHz. Unlike the Big LEO proceeding, this proceeding was open to all parties interested in serving the United States in the 2 GHz MSS band. Therefore, the Commission should take the opportunity to adopt a band plan that accommodates all systems and can be used as a template for global licensing and service.

The Commission also asks whether designations of spectrum for non-U.S. licensed systems should be conditioned on successful coordination internationally. (NPRM, ¶ 110.) This is unnecessary. As the Commission points out, it is not responsible for coordination of non-U.S. licensed systems. Therefore, it cannot

impose its designation of spectrum for non-U.S. licensed systems on other countries. It can certainly encourage other administrations to adopt the same band plan during coordination of U.S.-licensed systems, and the Commission should do so.

The Commission also seeks comment on how to harmonize the band plan for 2 GHz MSS adopted in the United States and the European Union's band plans for 2 GHz MSS and 1.6/2.4 GHz MSS. (NPRM, ¶ 111.) As the Commission notes, the European band plans were not premised on the same goals or policies that the Commission has proposed for 2 GHz and 1.6/2.4 GHz; therefore, it would be difficult to "harmonize" the two plans. However, the Commission should take whatever steps are necessary in this proceeding and the international coordination process to ensure that U.S.-licensed systems are not penalized as a result of the differences between the two band plans, and receive access to the same opportunities to provide service in Europe as European systems obtain in the United States.

XII. THE COMMISSION SHOULD ADOPT THE OUT-OF-BAND EMISSIONS LIMITS SPECIFIED BY ETSI AND THE ITU FOR 2 GHZ MSS SYSTEMS.

The Commission proposes that 2 GHz MSS licensees must suppress out-of-band and spurious emissions from the space and earth stations to the level specified in Section 25.202(f) of the Commission's Rules. The Commission also proposes to adopt for 2 GHz MSS the out-of-band emissions limits proposed for the 1559-1605 MHz band in the GMPCS NPRM. Specifically, 2 GHz MSS METs would be required to meet a -70 dBW/MHz limit on wideband EIRP density in the 1559-1605 MHz band and a -80 dBW EIRP limit on narrowband emissions of less than 700 Hz.

Globalstar has no objection to adoption of Section 25.202(f) for spacecraft and terminal emissions for the United States 2 GHz allocation. It also has no objection to the adoption of the out-of-band emissions limits proposed for the 1559-1605 MHz band in the GMPCS NPRM. However, it would be better practice for the Commission to rely on more universal standards for NGSO MSS systems, when applicable, than those adopted specifically for the United States.

As the Commission recognizes in the NPRM, the ITU Radiocommunications Sector Assembly has adopted recommendations for regulatory limits on out-of-band emissions from MSS METs operating in the 1-3 GHz range,⁴⁹ as has the European Telecommunication Standards Institute (“ETSI”).⁵⁰ Licensees and the public would be better served if the Commission were simply to incorporate these recommendations into the rules for MSS systems operating at 2 GHz, and not adopt any other U.S.-specific rules.

The global market for MSS will demand that METs for licensed 2 GHz systems meet these requirements, and the Commission can promote the service by maintaining consistency in the standards. The NGSO MSS systems authorized in the United States will operate globally, and, therefore, will have to meet standards

⁴⁹ Recommendation ITU-R M.1343, “Essential Technical Requirements of Mobile Earth Stations for Global Non-Geostationary Mobile Satellite Service Systems in the Bands 1-3 GHz.”

⁵⁰ ETSI TBR-42, “Satellite Personal Communications Networks (S-Mobile Earth Stations (MESs)), including Handheld for S-PCN in the 2,0 GHz Bands under the Mobile Satellite Service (MSS): Terminal Essential Requirements.”

adopted by many administrations. ITU-R M.1343 and ETSI-42 are standards recognized by a significant portion of the market for MSS. It would facilitate the deployment and free circulation of Globalstar terminals for the Commission to adopt the ITU and ETSI standards for systems authorized in the United States.

Moreover, non-U.S.-licensed NGSO systems will likely meet these standards. To the extent that U.S.-licensed 2 GHz systems must meet more stringent limits, they could be harmed in competing with non-U.S.-licensed systems.

Ultimately, the public benefits by facilitating free circulation of terminals for operation with 2 GHz MSS systems. Adoption of different standards by the Commission could have the effect of isolating the United States from the rest of the world and could make it more difficult for U.S. subscribers to roam abroad and non-U.S. subscribers to roam into the United States. As long as the Commission is attempting to strengthen internationally the commercial U.S. satellite industry, it should ensure the U.S. standards for MSS systems are synchronized with those adopted by international standards-setting bodies.

XIII. CONCLUSION

For the reasons set forth herein, the Commission should adopt the rules and policies proposed above for 2 GHz MSS.

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CERTIFICATE OF SERVICE

I, William D. Wallace, hereby certify that I have on this 24th day of June, 1999, caused to be served true and correct copies of the foregoing "Comments of Globalstar, L.P." upon the following parties via hand delivery (marked with an asterisk(*)), or by first-class United States mail, postage prepaid, upon:

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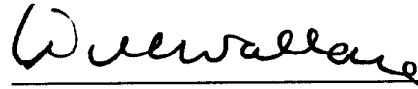
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